

WHAT IS CLAIMED IS:

1. A singlet telescope for reshaping the output of a laser, comprising:
a monolithic lens element having two spaced-apart surfaces said surfaces radiused in the same direction.

2. The telescope of Claim 1, wherein said radiused surfaces have the same length radius of curvature.

3. The telescope of Claim 2, wherein the subject telescope is described by:

$$R_1 = \frac{Z(n-1)}{n(1-m)}$$

where R_1 is the radius of curvature of the input surface, Z refers to the length of the element, n is the index of refraction of the lens medium and m is the angular magnification.

4. The telescope of Claim 1, wherein at least one of said surfaces includes an anti-reflective coating.

5. The telescope of Claim 1, wherein said telescope is used to magnify the output of said laser, thus to present concave surfaces to the laser that generate focused retro-reflections and wherein the retro-reflections are focused close to said monolithic element away from said laser.

6. The telescope of Claim 1, wherein under a predetermined magnification or inverse magnification the third-order aberrations associated with said singlet telescope are insignificant.

7. The telescope of Claim 6, wherein said predetermined magnification is 2X.
8. The telescope of Claim 1, wherein the material for said monolithic element is selected from the group consisting of ZnSe, ZnS, YAG, Ge and Si.
9. A method for minimizing retro-reflective ghosts from a telescope used to reshape the output of a laser, comprising the step of:
using a singlet telescope to reshape the output of the laser.
10. The method of Claim 4, wherein the singlet telescope has only two reflective surfaces.
11. A method for controlling the diameter and position of a waist of a collimated light beam produced by a pump laser in a nonlinear crystal used by an optical parametric oscillator, comprising the step of:
interposing a singlet telescope between the pump laser and an end of the nonlinear crystal.
12. The method of Claim 11, wherein the singlet telescope includes a monolithic element having two spaced-apart surfaces, the surfaces radiused in the same direction.
13. The method of Claim 12, wherein the radiused surfaces have the same length radius of curvature.

14. The method of Claim 13, wherein the singlet telescope is described by described by:

$$R_1 = \frac{Z(n-1)}{n(1-m)}$$

where R_1 is the radius of curvature of the input surface, Z refers to the length of the element, n is the index of refraction of the lens medium and m is the angular magnification.